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## CUSTOMER STORY – ENERGY & UTILITIES

# SEMO Single Electricity Market Operator

Meeting the demands of expected user load

## Background

The Single Electricity Market (SEM) is the wholesale electricity market operating in the Republic of Ireland and Northern Ireland. As a gross mandatory pool physical market operating with dual currencies and in multiple jurisdictions, SEM represents the first market of its kind in the world. The market encompasses approximately 2.5 million electricity consumers, 1.8 million in the Republic of Ireland and 0.7 million in Northern Ireland. The Single Electricity Market Operator (SEMO) facilitates the continuous operation and administration of the Single Electricity Market. SEMO is a joint venture between EirGrid plc and SONI Limited.

SEMO is the market operator responsible for the administration of the Single Electricity Market. The organisation is managed as a contractual joint venture between EirGrid, the transmission system operator for the Republic of Ireland, and the System Operator for Northern Ireland (SONI). SEMO is licensed and regulated cooperatively by the Commission for Energy Regulation (CER) in Ireland and the Northern Ireland Authority for Utility Regulation (NIAUR). The SEM Establishment Programme commenced in 2005 with a clear focus to bring about the single electricity market.

Managed by both EirGrid and SONI, the SEM Establishment Programme was responsible for the establishment of SEMO and the systems and processes necessary to operate the new market.

## Challenge

The challenge to the SEM Programme was to ensure that the Single Market Operator (SMO) organisation was established, and operationally ready, in time for commencement of the market in November 2007. The systems were built on modern, open, e-business, n-tier platform architecture to provide maximum scalability, availability, resilience, performance, reliability and stability to enable mission-critical operations for the Single Electricity Market.

SQS was engaged to recommend a strategy for performance-testing the SEM Market Applications for Go-Live to ensure it functioned to business response time targets while simulating scalability for future transaction volume growth.

The performance testing was to include testing the functionality available for Market Participants, Transmission System Operators, Single Market Operator and Management Reporting. There were 17 system performance requirements which were to be validated during the Performance Test Execution Phase. These targets were selected from the business performance test conditions for market operations.

## Solution

Software Quality Systems (SQS) completed an initial Proof of Concept (POC) exercise to advise the SEM Programme on formulating a test approach for performance testing the new SEM Market Applications to ensure the performance market systems once live. The primary objective of the testing was to ensure that the performance of the SEM system would meet the demands of expected user load at the launch of the SEM Market Applications while simulating scalability for future transaction volume growth.

SQS proceeded to work with the SEM Project Team to complete the required tasks to comprehensively performance test the SEM Market. Applications prior to Market Go-Live including:

- Recommendation of suitable Load and Performance Test Software Tool
- Performance Test Strategy and Test Plan Creation
- Development of Performance Test Scripts and Scenarios
- Execution of Performance Test Benchmarks
- Generation of SEM Performance Testing Report

The development of the Performance Test Scripts and Scenarios involved:

- Developing 12 Market Participants Performance Test Scripts including Bids, Offers, Queries and Registrations
- Designing a Performance Test Scenario to simulate numerous user sessions
- Executing several cycles of Load, Stability and Stress Tests on the SEM Market Applications to simulate Live usage conditions

## Benefits for the Customer

SQS successfully completed the performance testing of the SEM Market Applications prior to its launch in November 2007. By performance testing concurrent operating conditions of the SEM Market Applications, EirGrid and SONI ensured a level of confidence in the system prior to Go-Live and mitigated the risk of any potential performance issues.

In addition, the SQS engagement ensured the SEM Programme obtained a Toolkit of Performance Test Assets to facilitate the ability for EirGrid and SONI to continually Performance Test updated software releases of the SEM Market Applications prior to deployment into production.

Sean McGoldrick of SEMO said, “By engaging with SQS for the performance testing of the SEM application, we ensured the performance of the SEM Market Application prior to Go-Live, minimising the risk of any disruption to ongoing business processes, operations and applications for the key market business stakeholders.”

At midnight on Thursday, 1 November 2007, the Single Electricity Market successfully moved into live operation, launching a new era for the wholesale trading of electricity.

## Contact

If you are interested in SQS' service offering regarding testing and quality management for the Energy & Utilities industry, please do not hesitate to send us an e-mail:

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